Issues, Goals, Objectives, and Implementation Strategies
by Habitat and Focal Species
State of Maine

DRAFT

General Note
Conserving and restoring populations goes hand in hand with conserving and restoring habitat. Each habitat is presented with a broad conservation goal, followed by broad objectives, with focal species objectives, and if available research and outreach needs. It is our intention to provide the state of Maine with the most current data available regarding population and habitat objectives where it is feasible. However, we recognize the state may have more specific information about some species and habitats. We hope this document will provide a framework for incorporating more specific information where it is available.

Strategies and tasks were taken from a variety of resources and combined into one document to help the state develop their Comprehensive Wildlife Conservation Plan. Full documents of noted resources are available upon request.

For population estimates of landbirds: Current population estimates for focal species are based on extrapolations from Breeding Bird Survey Data. Contact Randy Dettmers for more information. 413/253-8567 or Randy_Dettmers@fws.gov

Fifteen priority habitats have been identified during this process:

HABITATS		
Coastal	**Freshwater Wetlands**	**Upland**
Marine Open Water	Freshwater Lakes, Rivers, and Streams	Deciduous and Mixed Forest
Estuaries and Bays	Palustrine Emergent Marsh	Coniferous Forest
Rocky Coastline, including islands and cliffs	Forested Wetland	Mountaintop Forest
Unconsolidated Shore (beaches and mudflats)	Schrub-scrub Wetland, including bogs	Shrub / Early Successional Habitat
Estuarine Emergent Saltmarsh		Grasslands / Agricultural Fields
		Urban / Suburban

For each of the three major habitat types we have presented a single table with all of the focal species which utilize that habitat type. We have followed this with specific species lists, goals and objectives for each of the 15 priority habitat types and associated species. The species tables list the priority species for BCR 14, their priority ranking (Highest priority =1, High priority = 2, and Moderate priority = 3), and primary season/s of occurrence. Habitat descriptions were compiled from Partners in Flight Pyhsiographic Plans and the North American Landbird Conservation Plan.

Coastal

Associated focal species:

Species	Priority	B	M	W	Species	Priority	B	M	W
American Black Duck	1	X		X	Hudsonian Godwit	3		X	
American Golden Plover	2		X		Leach's Storm Petrel	3	X		
American Oystercatcher	3	X			Least Sandpiper	3		X	
Arctic Tern	2	X			Long-tailed Duck	3			X
Atlantic Brant	3		X		Nelson's Sharp-tailed Sparrow	1	X		
Atlantic Puffin	3	X		X	Northern Gannet	2			
Bald Eagle	3	X		X	Piping Plover	1	X		
Barrow's Goldeneye	1			X	Purple Sandpiper	1			X
Black Guillemot	2	X		X	Razorbill	2	X		X
Black Scoter	2			X	Red Knot	2		X	
Black-bellied Plover	2		X		Red Phalarope	2		X	
Black-crowned Night Heron	2	X			Red-necked Grebe	2			X
Blacked-legged Kittiewake	3			X	Red-necked Phalarope	1		X	
Canada Goose –NAP	2		X		Red-throated Loon	3			X
Common Eider	1	X		X	Roseate Tern	2	X		
Common Goldeneye	3	X		X	Ruddy Turnstone	2		X	
Common Loon	3	X		X	Sanderling	3		X	
Common Tern	2	X			Semipalmated Plover	3		X	
Great Cormorant	1	X		X	Semipalmated Sandpiper	1		X	
Greater Scaup	3			X	Short-billed Dowitcher	2		X	
Greater Shearwater	1		X		Short-eared Owl	3	X	X	
Harlequin Duck	1			X	Surf Scoter	3			X
Herring Gull	2	X		X	Whimbrel	2		X	
Horned Grebe	3			X	Willet	3		X	

Marine Open Water (nearshore and offshore)

Associated Focal Species:

Species	Priority	B	M	W	Species	Priority	B	M	W
Arctic Tern	2	X			Northern Gannet	2			
Black Guillemot	2	X		X	Razorbill	2	X		X
Common Eider	1	X		X	Red Phalarope	2		X	
Greater Shearwater	1		X		Red-necked Phalarope	1		X	

Issues

Threats:

- Climate change/sea level rising
- Oil spills /contamination
- Disease
- Prey availability (?)
- Entanglement (fishing lines and nets)

Goal:
Conserve, restore and enhance populations of focal species in coastal habitat to ensure the overall conservation of all native species within this habitat.

General Objectives:

1. Protect and maintain high priority habitats.

Identify high priority habitats.	• Conduct surveys to determine significant wintering, foraging, molting, and staging areas.

2. Maintain or enhance populations of focal species.

Monitor breeding and non-breeding populations of focal species to determine population size, status, and trends.	• Monitor death & morbidity of seabirds. • Identify & monitor important foraging, wintering, and migrating areas. • Develop and implement strategy to monitor colonial birds.

	• Increase monitoring of seabird bycatch. • Determine population level effects of oil and hazardous materials on birds. • Study the role of commercial fisheries in seabird mortality. • Assess role of commercial fisheries on prey availability • Implement surveys to determine population size of all species.
Decrease human disturbance/threats.	• Develop partnerships with fishery industries and commercial tour boat operators. • Partner with fishery planners to include reduced seabird mortality strategies in all future plans. • Implement increased enforcement of shipping activities, safe operational procedures, spill clean-up, and rehabilitation of oiled birds. • Prohibit and enforce dumping of debris, lines, and nets. • Develop non-persistant lines, nets and traps.

Species Specific Objectives:

Species	Status & Distribution	Habitat Objectives	Research & Outreach Objectives
Arctic Tern	See Islands for Objectives		
Black Guillemot	See Islands for Objectives		
Common Eider	See Islands for Objectives		
Greater Shearwater	Status and distribution unknown Non-breeding visitor between March - August	Threats: Oil spills and contaminants, incidental harvest by commercial fisheries	• Develop monitoring protocols • Evaluate significance of mortality associated with bycatch from fisheries
Northern Gannet	• Non-breeding visitor • Population increasing in BCR	Threats: Oil spills and contaminants, incidental harvest by commercial fisheries	• Estimate adult survival rates (BCR 14 Workshop) • Explore potential to establish as breeding species in Gulf of Maine (BCR 14 Workshop)
Razorbill	See Islands for Objectives		
Red Phalarope	No population estimate available for Maine		Ask International Shorebird Group to identify Phalaropes as a focal species (BCR 14 Workshop)
Red-necked Phalarope	<1,000 individuals documented in 1990	Threats: decline in food availability, oil spills, predation, and storm events	Research is needed on availability of marine plankton within Quoddy Bay (MDIFW Species

	Bay of Fundy represents an important staging area Listed as Species of Special Concern in Maine	Until the early 1980's, large concentrations of birds (250,000 – 1,000,000+) were observed near Quaddy head, Coobscook Bay, on the St Croix River, and Passamaquoddy Bay between Deer Island and Campobello Island. Recent surveys have documented fewer than 1,000 birds in Maine. Reason for decline is unknown.	Assessment) Surveys efforts should be initiated to document presence and abundance of phalaropes in Maine (MDIFW Species Assessment) Ask International Shorebird Group to identify Phalaropes as a focal species (BCR 14 Workshop)

Estuaries and Bays

Associated Focal Species:

Species	Priority	B	M	W	Species	Priority	B	M	W
American Black Duck	1	X		X	Great Cormorant	1	X		X
Barrow's Goldeneye	1			X	Herring Gull	2	X		X
Black Scoter	2			X	Red Phalarope	2		X	
Canada Goose –NAP	2		X		Red-necked Grebe	2			X
Common Eider	1	X		X	Red-necked Phalarope	1		X	
Common Tern	2	X			Roseate Tern	2	X		

Issues:

Need to protect upland buffer surrounding the estuaries and bays to maintain habitat quality and minimize disturbance. Several key locations are located at the mouth of rivers receiving significant industrial discharge. Need to monitor invasive species to make sure they do not become serious threat

Threats:

• Habitat loss, through development and erosion
• Human disturbance
• Oil spills / Contaminants

Goal:
Conserve, restore and enhance populations of focal species which utilize estuaries and bays to ensure the overall conservation of all native species within this habitat.

General Objectives:

1. Protect and maintain high priority habitats.

Identify high priority habitats.	• Initiate standardized coast-wide surveys to determine key molting, wintering, and staging areas • Identify and map high priority for focal species

3. Maintain or enhance populations of focal species.

Monitor breeding and non-breeding populations of focal species to determine population size, status, and trends.	• Monitor death & morbidity of seabirds. • Identify & monitor important foraging, wintering, and migrating areas. • Develop and implement strategy to monitor colonial birds. • Increase monitoring of seabird bycatch and role of commercial fisheries on seabird mortality. • Determine population level effects of oil and hazardous materials on birds. • Assess role of commercial fisheries on prey availability • Implement surveys to determine population size of all species.
Decrease human disturbance/threats.	• Develop partnerships with fishery industries and commercial tour boat operators. • Partner with fishery planners to include reduced seabird mortality strategies in all future plans. • Implement increased enforcement of shipping activities, safe operational procedures, spill clean-up, and rehabilitation of oiled birds. • Prohibit and enforce dumping of debris, lines, and nets. • Develop non-persistant lines, nets and traps.

Species Specific Objectives:

Species	Status & Distribution	Habitat Objectives	Research & Outreach Objectives
American Black Duck (Wintering Population)	Maine population estimated at: 32,300 individuals (or pairs??) Harvested 9,717 birds in 2002 Year round presence in Maine Obj being developed by NSST	Threats: competition with Mallards, degradation of wintering habitat, human disturbance, habitat loss and degradation, aquaculture, sea level rise, and contaminants. Need to protect inter-tidal wetlands from degradation (BCR 14 workshop) <u>Focus Areas:</u> Cobscook Bay Merrymeeting Bay / Lower Kennebec River Weskeag River Saltmarsh	Maintain or increase as necessary existing monitoring efforts of wintering population (BCR 14 Workshop) Expand population model to include habitat characteristics (BCR 14 Workshop) Expand survey efforts throughout BCR to cover areas currently not included in aerial surveys (BCR 14 Workshop)

Barrow's Goldeneye	Maine population estimated at 150 individuals at 5-6 locations Winter resident only	Threats: oil spills, displacement from foraging areas by aquaculture development, over harvest Maintain key wintering areas from development and disturbance (BCR 14 Workshop)	Initiate routine surveys of wintering birds (BCR 14 Workshop) Initiate research on wintering ecology of the species, and potential effects of aquaculture development on traditional feeding habitat (BCR 14 Workshop) Develop outreach material to help differentiate between barrow's and common goldeneye (BCR 14 Workshop)
Black Scoter	Winter resident only 2002 harvest for all scoter species in Maine: 6,400 birds	Threats: oil spills, contaminants, and overall lack of knowledge on the species Protect critical spring staging areas (BCR 14 Workshop) <u>Focus Areas:</u> Merrymeeting Bay / Lower Kennebec River	Initiate surveys of migration and staging areas (BCR 14 Workshop) Improve data collection from hunters (BCR 14 Workshop) Initiate research on foraging behavior and ecology, contaminant levels in prey items, distribution and quality of feeding areas, and develop a population model (BCR 14 Workshop) Develop outreach material to educate public about value of habitat used during migration (BCR 14 Workshop)
Canada Goose – NAP	See Grasslands / Agriculture for Objectives		
Common Eider (Molting and Wintering Birds)	• 29,000 pairs nesting on 320 islands • 2002 harvest level: 20,600 birds	Threats: habitat loss, principle dietary items have high commercial value, human disturbance, potential over-harvest, aquaculture development, high susceptibility to disturbance and oil spills	Document seasonal distribution of eiders significant, particularly brood rearing and molting areas (Atlantic Coast Sea Duck Workshop / BCR 14 Workshop)

	Population Objective: By 2015, increase the number of nesting pairs of eiders by 20% (MDIFW Species Assessment)	during molt period Habitat conservation efforts should include nesting islands, brood rearing habitat, molting and feeding areas (BCR 14 Workshop) Focus Areas: Merrymeeting Bay / Lower Kennebec River	Initiate research to evaluate significance of commercial harvesting of resources from eider molting and wintering habitats (MDIFW Species Assessment and Atlantic Coast Sea Duck Workshop) In cooperation with partners, develop an outreach program to promote an understanding and appreciation of eiders and their habitat requirements in Maine (MDIFW Species Assessment) Improve collection of information from hunters, including level of take and age / sex ratios. Work with outfitters to improve reporting efforts. (Atlantic Coast Sea Duck Workshop / BCR 14 Workshop) Monitor effects of commercial aquaculture development on distribution and feeding rates of eiders (BCR 14 Workshop)
	See Islands for Breeding Common Eider Habitat Objectives		
Common Tern	See Islands for Objectives		
Great Cormorant	See Islands for Objectives		
Herring Gull	See Islands for Objectives		
Red Phalarope	See Marine Open Water for Objectives		
Red-necked Grebe	Population Objective: Maintain current population	Threats: Oil spills, contaminants, and by-catch in commercial fisheries Need to minimize exposure to oil pollution during winter months (BCR 14 Workshop)	Develop methods and conduct surveys of migrating and wintering birds (BCR 14 Workshop) Need to determine genetic relatedness between eastern and western populations (BCR 14 Workshop)

Red-necked Phalarope	See Marine Open Water for Objectives
Roseate Tern	See Islands for Objectives

Rocky Coastline, including Islands and Cliffs

Associated Focal Species:

Species	Priority	B	M	W	Species	Priority	B	M	W
Arctic Tern	2	X			Northern Gannet	2			
Black Guillemot	2	X		X	Purple Sandpiper	1			X
Common Eider	1	X		X	Razorbill	2	X		X
Common Tern	2	X			Roseate Tern	2	X		
Great Cormorant	1	X		X	Ruddy Turnstone	2		X	
Harlequin Duck	1			X	Semipalmated Sandpiper	1		X	
Herring Gull	2	X		X					

Issues:

Need to protect additional islands
Lack of funding for surveys, island acquisition, and new restoration projects

Threats:

- Predation, particularly from Great black-backed and Herring Gulls
- Habitat loss, through development and erosion
- Food availability
- Aquaculture development
- Human disturbance
- Contaminants

Goal:

Conserve, restore and enhance populations of focal species which utilize Maine's rocky coastline, islands, and cliffs to ensure the overall conservation of all native species within this habitat.

General Objectives:

1. Protect and maintain high priority habitats.

Identify high priority habitats.	• All 3,500 coastal islands have been evaluated for current or historic use by

	seabirds, and 350 islands have been identified as Nationally Significant • MDIFW has identified priority islands as Significant Wildlife Habitat under the Natural Resource Protection Act. • Entire dataset has been included in GIS database and is updated annually
Protect high priority habitats	• Protect seabird nesting islands and adjacent waters from further development, especially human dwellings, fishing piers, docks, and aquaculture facilities (Maine E&T Handbook) • Municipalities should identify seabird nesting islands during their comprehensive planning effort, and consider ¼ buffers around seabird nesting islands (Maine E&T Handbook) • Use voluntary agreements, conservation easements, conservation tax abatements and incentives, and acquisition to protect important seabird nesting habitat (Maine E&T Handbook) • Avoid overfishing and polluting nursery areas for herring, hake, and other fish stocks important as food for seabirds (Maine E&T Handbook) • Do not use gill nests near seabird nesting islands or known feeding area (Maine E&T Handbook)
Plan for oil spill response.	• Continue Spill Response efforts and planning, including purchasing survey and hazing equipment (MDIFW Oil Spill Response Plan, NA Regional Shorebird Plan) • Identify and map significant habitat for nesting, migratory, and wintering species • Document habitat quality and food resources prior to spill to serve as baseline for assessing direct and indirect effects of spills (NA Regional Shorebird Plan) • Implement post spill surveys to accurately quantify spill damages. • Effects on birds should be minimized by increase enforcement of shipping activities, safe operational procedures, spill clean up and rehabilitation of oiled birds.

4. Maintain or enhance populations of focal species.

Monitor breeding and non-breeding populations of focal species to determine population size, status, and trends.	• Continue surveying seabird nesting islands during the Gulf of Maine Seabird Working Group census window • Monitor death & morbidity of seabirds. • Identify & monitor important foraging, wintering, and migrating areas. • Develop and implement strategy to monitor colonial birds. • Increase monitoring of seabird bycatch. • Determine population level effects of oil and hazardous materials on birds.

	• Study the role of commercial fisheries in seabird mortality. • Assess role of commercial fisheries on prey availability • Implement surveys to determine population size of all species.
Decrease human disturbance/threats.	• Maintain seasonal closures on all seabird nesting islands from April 1 – July 31 (eider and gull islands) or August 15 (alcid and tern islands) (Maine E&T Handbook) • Keep aquaculture facilities more than ¼ mile from seabird nesting islands (Maine E&T Handbook) • Keep boat activity more than 600' from seabird nesting islands (Maine E&T Handbook) • Keep all pets off islands and do not introduce mammalian predators (Maine E&T Handbook) • Develop partnerships with fishery industries and commercial tour boat operators. • Develop partnerships with Maine Island Trail and other recreational and commercial users of Maine's coastal islands to educate them about seabird ecology and disturbance concerns • Partner with fishery planners to include reduced seabird mortality strategies in all future plans. • Implement increased enforcement of shipping activities, safe operational procedures, spill clean-up, and rehabilitation of oiled birds. • Prohibit and enforce dumping of debris, lines, and nets. • Develop non-persistant lines, nets and traps.

Species Specific Objectives:

Species	Status & Distribution	Habitat Objectives	Research & Outreach Objectives
Arctic Tern	• 3,225 pairs nesting on 8 islands 97% of Maine's population nests on 4 islands • State Threatened (1997)	Threats include: predation from gulls, habitat loss, competition for nesting sites with gulls, changes in food availability, and limited number and distribution of colonies Successful management techniques at nesting islands include:	Continue to research foraging habitat, migration routes, winter habitat use and distribution (USFWS Tern Plan) Continue outreach efforts regarding effects of human disturbance on nesting colonies Initiate research to determine association

		• Restoration of historical sites using social attraction, vegetation control, predator control, nest shelters, seasonal closure of islands, sign posting, wardens, education programs, and law enforcement. (Tern Management Handbook) Continue efforts to monitor occupied and historic nesting islands (BCR 14 Workshop) Continue efforts to protect priority nesting islands through conservation ownership	with commercial fisheries and climate change to food availability (USFWS Tern Plan) Initiate research to determine factors influencing breeding success and productivity rates (BCR 14 Workshop)
Black Guillemot	• 12,273 pairs nesting on 166 islands	Threats: drowning in commercial fishing nets, contaminants, human disturbance, and habitat loss Continue efforts to protect priority nesting islands through conservation ownership Evaluate need to remove mammalian predators from nesting islands to enhance survival and recruitment rates	
Common Eider (Breeding Population Only)	• 29,000 pairs nesting on 320 islands • 2002 harvest level: 20,600 birds <u>Population Objective:</u> By 2015, increase the number of nesting pairs of eiders by 20% (MDIFW Species Assessment)	Threats: Great black-backed gull predation on ducklings, habitat loss, avian cholera, principle dietary items have high commercial value, human disturbance on nesting islands, potential over-harvest, aquaculture development, high susceptibility to disturbance and oil spills during molt period Successful management efforts have included island acquisition by conservation	Continue banding efforts to evaluate survival and recruitment rates, movement rates and hunting mortality (MDIFW Species Assessment, Atlantic Coast Sea Duck Workshop, BCR 14 Workshop) Determine genetic composition of harvested population (MDIFW Species Assessment) Initiate standardized surveys of breeding

		agency, seasonal closure of nesting islands, signage of nesting islands, gull control. Increase the number of eider nesting islands in conservation ownership at a rate of one island per year (MDIFW Species Assessment) Habitat conservation efforts should include nesting islands, brood rearing habitat, molting and feeding areas (BCR 14 Workshop)	population, including determining relationship between May male counts and number of nesting hens on islands.(BCR 14 Workshop) Continue efforts to develop reliable technique to census breeding population which would allow population trends to be monitored (Atlantic Coast Sea Duck Workshop / BCR 14 Workshop) Document seasonal distribution of eiders significant, particularly brood rearing and molting areas (Atlantic Coast Sea Duck Workshop / BCR 14 Workshop) Initiate research to evaluate significance of recreational use of eider nesting islands (MDIFW Species Assessment) Initiate research to evaluate significance of commercial harvesting of resources from eider brood rearing and feeding habitats (MDIFW Species Assessment and Atlantic Coast Sea Duck Workshop) In cooperation with partners, develop an outreach program to promote an understanding and appreciation of eiders and their habitat requirements in Maine (MDIFW Species Assessment) Improve collection of information from hunters, including level of take and age / sex ratios. Work with outfitters to improve reporting efforts. (Atlantic Coast Sea Duck Workshop / BCR 14 Workshop)

			Monitor effects of commercial aquaculture development on distribution and feeding rates of eiders (BCR 14 Workshop) Develop population model for eiders (BCR 14 Workshop) Assess significance of gull predation on duckling survival rates (BCR 14 Workshop)
	See Estuaries and Bays for Common Eider Molting and Wintering Objectives		
Common Tern	• 5,632 pairs nesting on 22 islands >90% of Maine's population nests on 8 islands	Threats include: predation from gulls, habitat loss, competition for nesting sites with gulls, changes in food availability, human disturbance on nesting islands, and limited number and distribution of colonies Successful management techniques at nesting islands include: • Restoration of historical sites using social attraction, vegetation control, predator control, nest shelters, seasonal closure of islands, sign posting, wardens, education programs, and law enforcement. (Tern Management Handbook) Increase the number of historic and currently occupied nesting islands in conservation ownership Continue efforts to monitor occupied and historic nesting islands (BCR 14 Workshop)	Continue to research foraging habitat, migration routes, winter habitat use and distribution**.** (USFWS Tern Plan) Continue outreach efforts regarding effects of human disturbance on nesting colonies (USFWS Tern Plan) Initiate research to determine association with commercial fisheries and climate change to food availability (USFWS Tern Plan) Initiate research to determine factors influencing breeding success and productivity rates (BCR 14 Workshop)

Great Cormorant	• Maine population is estimated at 141 pairs at 8 locations, population decreasing in recent years • >90% of North American population in BCR 14	Threats include: predation from gulls and eagles, habitat loss, competition for nesting sites with gulls, changes in food availability, human disturbance on nesting islands, and limited number and distribution of colonies Continue efforts to protect priority nesting islands through conservation ownership	• Need to develop strategies to monitor productivity (BCR 14 Workshop) • Continue annual surveys of colonies (BCR 14 Workshop) • Evaluate factors which may be limiting population growth
Harlequin Duck	• estimated at 1,100 birds • State Threatened (1997) Wintering population only <u>Population Objectives</u>: Working cooperatively with Canadian Recovery Team to increase the number of harlequins wintering in Maine by 20%, by 2016 (MDIFW Species Assessment)	Threats: Low fecundity rates and high rate of non-breeding in female harlequins results in low reproductive potential, this increases significance of adult survival rates. Oil spills remain a particularly high risk due to limited winter distribution of North American wintering population. Listing concerns: size of population wintering in Maine, small size of NA population and percentage of that population wintering in Maine (50%), and more than 90% of the birds winter at fewer than 5 locations. Distribution within Maine is limited to a small number of islands including Isle au Haut and neighboring islands in Jericho and Penobscot Bays By 2005, identify and map all important harlequin wintering sites in Maine (MDIFW Species Assessment) Minimize activities such as dragging for shellfish and disturbance from waterfowl hunters that disrupt harlequin feeding activities (Maine T&E Handbook)	• Continue research on survival rates, habitat use, and site fidelity (Maine T&E Handbook) Initiate annual surveys at traditional wintering sites and period coast-wide surveys (MDIFW Species Assessment and BCR 14 Workshop) Initiate research to determine factors limiting over-winter survival of harlequins (MDIFW Species Assessment) • Satellite and genetic studies are underway to determine relationship between Canadian and Greenland populations Initiate research to evaluate significance of commercial harvesting of resources from harlequin feeding areas (MDIFW Species Assessment) Continue efforts to educate public about ecology of

		Focus Area: Southern shore of Isle au Haut Islands in Outer Penobscot and Jericho Bays	harlequins and hunter identification "tips" to avoid incidental take during waterfowl harvest In cooperation with partners, develop an outreach program to promote an understanding and appreciation of harlequins and their winter habitat requirements in Maine (MDIFW Species Assessment)
Herring Gull	• 28,290 pairs nesting on 183 islands year-round resident	Threats: Population may be limited by competition with Great Black-backed Gulls, availability of suitable nesting sites, contaminants, and reduction in food availability due to commercial harvesting Breeding populations on 10 seabird restoration islands have been eliminated or significantly reduced in number and distribution Avoid overboard discharge of bait or fish waste that may enhance gull feeding efforts and populations in local areas – to the detriment of other seabird species (Maine T&E Handbook)	
Northern Gannet	See Marine Open Water for Objectives		
Purple Sandpiper	• 4,000+ individuals were observed in 2003 Wintering resident only	Threats: Oil spills and human disturbance	• Continue or expand efforts to document winter distribution (PRISM) (BCR 14 Workshop) • Expand efforts to band birds and document site fidelity
Razorbill	• 353 pairs nesting on 6 islands	Threats include: predation from gulls, habitat	• Develop and implement by

	• State Threatened (1997) Significant wintering population documented off Grand Manan Island (year?) <u>Population Objective</u>: By 2015, increase and maintain population by 50% over level recorded in 2000 (MDIFW Species Assessment)	loss, changes in food availability, oil spills, incidental take during fishing, and limited number and distribution of colonies • By 2005, identify and prioritize islands with suitable nesting habitat and cultivate relationships with partners and landowners to facilitate management (MDIFW Species Assessment) • By 2015, increase the number of islands supporting nesting razorbills to 8, ensuring these islands are distributed between Penobscot Bay and downeast Maine. (MDIFW Species Assessment) Maintain seasonal closure of nesting islands Continue efforts to protect priority nesting islands through conservation ownership <u>Focus Area:</u> Wintering population near Grand Manan Machias Seal Island Matinicus Rock	2005 a protocol to inventory and monitoring productivity rates of nesting razorbills (MDIFW Species Assessment) • Conduct surveys to determine winter distribution and habitat use of razorbills BCR 14 Workshop) Determine breeding locations for birds wintering in the Gulf of Maine (BCR 14 Workshop) • By 2005, develop and implement, in conjunction with partners, an outreach plan to promote an understanding and awareness of seabirds, including razorbills, in Maine. (MDIFW Species Assessment) Evaluate need and ability to control gull populations on “un-staffed” nesting islands (MDIFW Species Assessment) Initiate research basic life history and ecology of razorbills, including breeding success and productivity, characteristics and location of foraging and chick rearing habitats, and survival rates of adult and immature birds. (MDIFW Species Assessment)

Roseate Tern	• 240 pairs nesting on 5 islands • Federal (1987)& State (1988) Endangered 85% of Maine's population nests on 2 islands <u>Population Objective:</u> Increase breeding population size, distribution, and productivity	• Threats include: predation from mink and gulls, habitat loss, changes in food availability, and limited number and distribution of colonies, inclement weather Comply with Essential Habitat regulations requiring all projects funded, permitted, or carried out by a municipality or state agency to be reviewed by MDIFW. (Maine E&T handbook) Successful management techniques at nesting islands include: • Restoration of historical sites using social attraction, vegetation control, predator control, nest shelters, seasonal closure of islands, sign posting, wardens, education programs, and law enforcement. (Tern Management Handbook) Continue efforts to monitor occupied and historic nesting islands (BCR 14 Workshop) Increase the number of historic nesting islands in conservation ownership (ROST Recovery Plan)	Continue to research foraging habitat, migration routes, winter habitat use and distribution**.** (ROST Recovery Plan) Continue outreach efforts regarding effects of human disturbance on nesting colonies (ROST Recovery Plan) Initiate research to determine association with commercial fisheries and climate change to food availability
Ruddy Turnstone	See Unconsolidated Shore for objectives		
Semipalmated Sandpiper	See Unconsolidated Shore for objectives		

Unconsolidated Shore (beach, sand, mudflats)

Associated Focal Species:

Species	Priority	B	M	W	Species	Priority	B	M	W
American Golden Plover	2		X		Ruddy Turnstone	2		X	
Black-bellied Plover	2		X		Semipalmated Sandpiper	1		X	
Herring Gull	2	X		X	Short-billed Dowitcher	2		X	
Piping Plover	1	X			Whimbrel	2		X	
Red Knot	2		X						

Species to consider including: Least Sandpiper & Semipalmated Plover

Issues:
This habitat type is home to two species covered under the Maine Endangered Species Act: the endangered Piping Plover and the Least Tern. The Atlantic Coast population of Piping Plovers is also as a threatened species by the U.S. Fish and Wildlife Service. Dense human populations are frequently located within the coastal regions of the north-eastern U.S., and as a result, the beach and dune communities associated with these areas are subject to tremendous pressures from recreational activities. Habitat loss, escalating human activity, and increasing populations of "human-associated" predators (i.e raccoon and fox) combine to create significant threats to many of the species utilizing this habitat.

Commercial harvesting of marine invertebrates occurs extensively throughout the state. The effects of this activity, both from a disturbance standpoint and an extraction of resources have yet to be evaluated. Many municipalities also try to rake beaches to remove seaweed rack and enhance aesthetic appearances of the beaches. Removal of the vegetation and the associated invertebrate community results in a significant reduction in food resources for many species.

Threats:
- Recreational disturbance to nesting and foraging birds
- Beach cleaning efforts
- Nuisance/predator species
- Loss of habitat
- Extraction of resources affecting shorebird food supplies
- Oil spills / contaminants
- Flooding

Goal:

Conserve, restore and enhance populations of focal species which utilize unconsolidated shores (e.g. beaches and mudflats) to ensure the overall conservation of all native species within this habitat.

General Objectives:

1. Protect and manage sufficient area of high priority habitats to support current populations of breeding, migrating, and wintering shorebirds and associated focal species.

Identify priority habitats for protection.	• Research best method of protection—acquisition, fee or easements from willing sellers • Develop coordinated state and federal satellite habitat mapping, delineating all important shorebird habitats (NA Regional Shorebird Plan) • Maintain and coordinate habitat protection of areas already owned by federal, state, local government or NGO's. • Train land mangers to mange habitat for shorebirds by increasing the number of Manomet habitat management workshops. (MANEM working group) • Research, assess, and implement control programs for mammalian and avian predators for high priority beach nesting birds (BCR 14 workshop) • Use voluntary agreements, conservation easements, conservation tax abatements and incentives, and acquisition to protect important shoreland habitat (MDIFW E&T Handbook) • Avoid future residential development of beach and dune habitat (MDIFW E&T Handbook)
Restore degraded habitats.	• Continue to support state IBA Program • Dredge material has been successfully used in some instances to create new habitat, especially for terns and plovers, although all habitat alterations should be conducted with caution and after consultation with experts; new substrates should not be overly silty and depositions with over 20% shell material could interfere with nest construction. (PIF) • Utilize dredged material to implement erosion control efforts. (Tern Management Handbook) • Vegetation encroachment can degrade habitat for terns and should be prevented at important nesting sites. Addition of dredge spoils on vegetated beach areas may impede succession. (PIF) • Assess habitat quality for foraging shorebirds through resource or energetic studies in representative habitats throughout the BCR. (NAWCP workshop) • Continue or develop and implement invasive species removal program

	• Conduct vegetation studies and remove vegetation where it is deemed excessive with the appropriate tools (fire, hand-pulling, grazing, etc). (MANEM working Group and Tern Management Handbook)) • Implement floating rafts where flooding threatens nesting species. (Tern Management Handbook)
Identify and protect adequate buffers (inland and offshore).	• Identify landowners of upland buffers • Determine the effects of disturbance and minimum protection buffers to maintain and enhance shorebird habitat use of foraging and roosting areas (NA Regional Shorebird Plan) • Determine best method of land conservation and protection—acquisition, fee, easement. • Initiate landowner contact.
Research Needs	• Identify prey resources in significant stopover and staging areas to determine optimal management techniques to promote these resources (NA Regional Shorebird Plan) • Determine the effects of environmental contaminants on shorebirds and their prey (NA Regional Shorebird Plan) • Determine length of stay (turnover rates) at stopovers to allow population estimates to be determined (NA Regional Shorebird Plan) • Determine limiting factors for priority shorebirds on breeding, migratory, or wintering grounds (NA Regional Shorebird Plan)

2. Maintain or enhance populations of high priority species.

Strategy	Task
Actively deter, reduce or eliminate predators.	• Use fences and other barriers to reduce predator impacts • Implement predator control plans where they do not already exist. • Utilize predator control management techniques in Tern Management Handbook.
Reduce or eliminate human disturbance	• Restrict access to nesting beaches during mid April to late July. • Prohibit free-running dogs. • Post signs to alert and educate public to presence of nesting birds. (NA Regional Shorebird Plan) • Use fences and other barriers to reduce human impacts. • Protect breeding sites from habitat alteration and overuse from recreational activities, including nighttime activities. (NA Regional Shorebird Plan)

	• Implement or utilize existing (partners) outreach opportunities to educate public about their impacts to wildlife (ME Audubon). • Increase law enforcement at sites with high human disturbance. • Increase outreach activities to gain support for protection of species. (Tern Management Handbook)
Monitor breeding and non-breeding populations of focal species to determine population size, status and trends.	• Participate in the implementation of the Program for Regional and International Shorebird Monitoring (PRISM) • Design and conduct coordinated aerial survey targeting migrating shorebirds in spring (PIF) • Develop a targeted monitoring program for high priority shorebird species, including staging and migration sites (coordinate with PIF projects). (NA Regional Shorebird Plan) • Maintain or enhance shorebird populations, both abundance and species diversity, and monitor populations through reliable and cost-effective techniques (NA Regional Shorebird Plan) • Monitor shorebirds for responses to current management practices. • Analyze threats to priority shorebird sites. • Investigate possible negative impacts that rising ocean levels from global climate change could have species. (PIF) • Continue to evaluate factors that limit populations of the priority species from this habitat suite and impede recovery, including studies of (a)habitat requirements for breeding, foraging, and staging, (b) demographics, (c) causes of mortality, and (d) factors limiting growth and survival of young • Investigate the behavior and population ecology of predators impacting the priority bird species to provide a better understanding of how to protect the birds from depredation. • Investigate potential threats from pesticide and heavy metal accumulation.
Plan for oil spill response.	• Continue Spill Response efforts and planning, including purchasing survey and hazing equipment (NA Regional Shorebird Plan) • Identify and map significant habitat for nesting, migratory, and wintering species • Document habitat quality and food resources prior to spill to serve as baseline for assessing direct and indirect effects of spills (NA Regional Shorebird Plan) • Implement post spill surveys to accurately quantify spill damages. • Effects on birds should be minimized by increase enforcement of shipping activities, safe operational procedures, spill clean up and rehabilitation of oiled birds.

Species Specific Objectives:

Species	Status & Distribution	Habitat Objectives	Research & Outreach Objectives
American Golden Plover	Surveys along the Maine coast in 1994 documented 10 individuals Maine represents edge of distribution range for the species		
Black-bellied Plover	Surveys along the Maine coast in 1998 documented 3,411 individuals		
Herring Gull	See Islands for Objectives		
Piping Plover	Listed as threatened by USFWS and endangered by MDIFW (1986) Essential Habitat designated in 1995	Threats include habitat loss and degradation, human/dog disturbance, beach cleaning activities, and predation. Over two-thirds of Maine's 30 miles of beaches have been lost as nesting habitat for piping plover because of construction of jetties, seawalls, and high density housing. Continue existing management techniques including: fencing, predator control, sign posting, wardens and education programs. Prohibit or minimize the following activities on nesting beaches: driving on beaches, kite flying, fire works, residential development, jetty and seawall construction, unleashed dogs, construction activities occurring between April 1-August 31 (Maine T&E Handbook)	Continue efforts to educate public and municipal officials regarding the ecology and life history requirements of plover. Continue working with conservation partners to protect nesting areas and enforce "area closed" practices

		Comply with Essential Habitat regulations requiring all projects funded, permitted, or carried out by a municipality or state agency to be reviewed by MDIFW. See the Piping Plover Recovery Plan: http://pipingplover.fws.gov/recplan/index.html	
Red Knot	Surveys along the Maine coast in 1993 documented 425 individuals Maine represents edge of distribution range for the species		
Ruddy Turnstone	Surveys along the Maine coast in 1994 documented 4,317 individuals		
Semipalmated Sandpiper	Surveys along the Maine coast in 1994 documented 53,950 individuals		
Short-billed Dowitcher	Surveys along the Maine coast in 1996 documented 3,664 individuals		
Whimbrel	Surveys along the Maine coast in 1995 documented 329 individuals Maine represents edge of distribution range for the species		

Estuarine Emergent Saltmarsh

Associated Focal Species:

Species	Priority	B	M	W	Species	Priority	B	M	W
American Black Duck	1	X		X	Short-billed Dowitcher	2		X	
Black-crowned Night Heron	2	X			Whimbrel	2		X	
Nelson's Sharp-tailed Sparrow	1	X							

Issues:

Relative to the entire physiographic region, only a small portion of this habitat type occurs in the U.S. The eastern Maine coast has several small rivers and estuaries. The salt marshes there tend to be smaller than in other regions of the Atlantic coast.

Threats:
Habitat loss and alteration
Oil spills and contaminants
Mosquito control efforts
Human disturbance

Goal:
Conserve, restore and enhance populations of focal species in estuarine emergent saltmarsh habitat to ensure the overall conservation of all native species within this habitat.

General Objectives:

1. Protect and maintain high priority habitats.

Strategy	Task
Identify priority habitats for protection.	• Research best method of protection—acquisition, fee or easements from willing sellers • Maintain and coordinate habitat protection of areas already owned by federal, state, local government or NGO's. • Create and restore habitat in focus areas through manipulation, augmentation, etc. • Protect marshes from chemical contamination, siltation, eutrophication, and other forms of pollution.

	• Train land mangers to mange habitat for shorebirds by increasing the number of Manomet habitat management workshops. (MANEM working group)
Restore degraded habitat	• Assess habitat quality for foraging shorebirds through resource or energetic studies in representative habitats throughout the BCR. (BCR 30 workshop) • Continue or develop and implement invasive species removal program • Conduct vegetation studies (MANEM working Group)
Plan for oil spill response.	• Implement planning and simulations or partner with those that are currently participating in these types of activities. (MANEM working group) • Monitor and quantify habitat and food resources prior to spill as preparation for quantifying the direct and indirect impacts of a spill. (MANEM working group) • Effects on birds should be minimized by increase enforcement of shipping activities, safe operational procedures, spill clean up and rehabilitation of oiled birds.
Secure adequate upland buffers (drier habitats adjoining wet marsh areas), especially for marshes near agricultural lands and human development. (PIF)	• TO preserve water quality and wetland function, maintain contiguous, forested riparian habitat at least 250' from saltmarsh (MDIFW E&T Handbook) • Identify landowners of upland buffers • Determine best protection—acquisition, fee, easement. • Initiate landowner contact.

2. *Maintain or enhance populations of high priority species*.

Strategy	Task
Monitor breeding and non-breeding populations of focal species to determine population size, status, and trends.	• Participate in the implementation of the Program for Regional and International Shorebird Monitoring (PRISM) • Develop and implement a regional monitoring program targeting coastal marshes in order to track population trends and estimate population sizes for all groups of birds • Develop a targeted monitoring program for high priority shorebird species, including staging and migration sites (coordinate with PIF projects). • Monitor shorebirds for responses to current management practices. (BCR 30 workshop) • Analyze threats to priority shorebird sites. (BCR 30 workshop) • Study how land-use practices such as ditching, impounding, dredging, open marsh water management, burning, and marsh restoration impact species in this suite (especially sparrows and rails) to determine optimal habitat management practices. (PIF) • Conduct studies of productivity and survival of sparrow populations across the planning unit to understand factors regulating population size and persistence. (PIF) • Investigate possible negative impacts that rising ocean levels from global climate change could have on marsh-nesting species. (PIF)

	• Support existing studies on disease (BCR 30 workshop)
Eliminate or reduce human disturbance.	• Develop and implement outreach projects to reduce human disturbance (BCR 30 workshop) • Partner with existing organizations to enhance efforts • Increase law enforcement at protected sites. • Increase agency capacity focused on permit and technical assistance for shorebird, landbird, waterbird species. • State agencies should fund incentives or measures to eliminate waterbird bycatch; specific suggestion for mid-Atlantic is to buy out gill-net fisheries. (BCR 30 workshop) • Encourage local planning (e.g., rolling setbacks and other tools) to ensure important breeding and non-breeding habitat is not affected by sea level rise due to climate change. (BCR 30 workshop)
	•
Incorporate protection of priority species into oil spill response plans.	• Coordinate with appropriate partners..... • Identify key tern foraging sites, prey base and stocks (MANEM working group) • Effects on birds should be minimized by increase enforcement of shipping activities, safe operational procedures, spill clean up and rehabilitation of oiled birds. (S. Atlantic Migratory Bird Initiative)

Species Specific Objectives:

Species	Status & Distribution	Habitat Objectives	Research & Outreach Objectives
American Black Duck	See Estuaries and Bays for Objectives		
Black-crowned Night Heron	Population estimated at 118 pairs at 7 colonies	No clear threats or declines known, however likely to be influenced by habitat loss and human disturbance (BCR 14 Workshop) Protect integrity of existing breeding and foraging habitat	Evaluate significance of heron predation on tern colonies (BCR 14 Workshop)
Nelson's Sharp-tailed Sparrow	Maine population estimated at 1,500 individuals	Threats: Loss and degradation of saltmarsh habitat, sea level rise, oil spills, industrial discharge, and contaminants (mercury)	Species is poorly covered by traditional BBS routes, and therefore requires specific monitoring efforts targeted at this and other saltmarsh species (BCR 14 Workshop)

	Stable or possibly increasing BBS trend (+1.68% / year for 1966-1999) >90% of eastern subspecies breeds in BCR 14 <u>Population Objective:</u> Maintain stable population in BCR	Protect breeding habitat and surrounding upland habitat at all occupied sites (BCR 14 Workshop) Determine effects of saltmarsh restoration efforts on species (BCR 14 Workshop) Evaluate need to restore tidal flow to "historic" marsh habitat (i.e. remove tide gates / install larger culverts) (BCR 14 Workshop) <u>Focus Areas:</u> Lower Kennebec River Marshes (marshes along Sprague, Morse, and Little Rivers, Atkins Bay, and behind Outer Head) with emergent vegetation at mouth of Kennebec River Upper Sheepscot River Marshes (Dyer River and Deer Meadow Brook) Roque Bluffs (saltmarsh on Englishman River) Mendall Marsh Weskeag River Saltmarsh Bass Harbor Marsh Downeast Saltmarsh Complex (saltmarshes associated with Pleasant, Mill, Harrington, and Narraguagus Rivers and Curtis Creek)	Inventory of New England saltmarshes has been completed, but now need to establish long-term monitoring program (BCR 14 Workshop) Continue contaminant investigations to evaluate significance to population (BCR 14 Workshop)

Short-billed Dowitcher	See Unconsolidated Shore for Objectives
Whimbrel	See Unconsolidated Shore for Objectives

Freshwater Wetlands

This habitat type supports thousands of lakes and ponds and tens of thousands perhaps hundreds of thousands of wetlands. Maine is similar to other states in the northeast having lost large portions of the wetland resource. The greatest losses occurred in floodplain wetlands (including forested wetlands and vernal pools) following hydropower development along major rivers. Over time, agriculture also has contributed heavily to losses (and conversion) of wetland habitat especially in northeastern Maine. American Black Ducks are synonymous with beaver flowages, ponds and marshes in the Northeast. Despite long-term declines they remain a common if not the most abundant breeder in the region. The wetland habitats used by black ducks and other associated species are protected by both state and federal laws. However, small incremental losses continue to occur across the region.

Associated focal species:

Species	Priority	B	M	W	Species	Priority	B	M	W
American Bittern	3	X			Common Tern	2	X		
American Black Duck	1	X		X	Least Sandpiper	3		X	
American Woodcock	1	X			Northern Harrier	3	X		
Bald Eagle	3	X		X	Olive-sided Flycatcher	2	X		
Bank Swallow	3	X			Palm Warbler	3	X		
Barn Swallow	3	X			Rusty Blackbird	2	X		
Barrow's Goldeneye	1			X	Short-eared Owl	3	X	X	
Black-crowned Night Heron	2	X			Wilson's Phalarope	3	X		
Canada Warbler	1	X			Wood Duck	3	X		
Common Goldeneye	3	X		X	Yellow Rail	3	X		
Common Loon	3	X		X	Yellow-bellied Flycatcher	3	X		

Freshwater Lakes, Rivers, and Streams

Associated Focal Species:

Species	Priority	B	M	W	Species	Priority	B	M	W
American Black Duck	1	X		X	Common Tern	2	X		
Barrow's Goldeneye	1			X					

Consider adding Common Loon and Bald Eagle

Issues:
The amount of freshwater wetlands that have been lost or degraded during the last century is huge. The greatest threats to most species in this habitat suite are continuing loss and alteration of wetland habitat through draining, dredging, filling, pollution, acid rain, agricultural practices, and siltation. Various contaminants (e.g., pesticides, insecticides, heavy metals, acid deposition, etc.) from industrial, agricultural, and urban/suburban sources can degrade wetland ecosystems and impair reproductive abilities of the birds. The size of wetlands is also an important consideration for some of the priority species in this habitat suite. Many of these species occur more often and at higher abundances in larger wetlands. Loss of wetland habitat continues to be the primary concern for the species of this habitat suite, and preservation of existing wetland sites should be the first priority for conservation actions in this habitat type.

Threats:
- Loss/alteration of habitat
- Contamination from various pollutants
- Invasive Species

Goal:
Conserve, restore and enhance populations of focal species in the freshwater lake, rivers, and streams habitat suite to ensure the overall conservation of all native species within this habitat.

General Objectives:

1. Protect and maintain high priority habitats.

Strategy	Task
Identify priority habitats for protection.	• Preserve all large (> 10 ha) freshwater wetlands from development, draining, and other forms of habitat loss. (PIF) • Evaluate habitat requirements, including nest site characteristics, water quality,

	and minimum wetland area needed during both the breeding and non-breeding seasons. (PIF)
Maintain and manage priority habitats already protected.	• Coordinate habitat protection of areas owned by federal, state, local government or NGO's. • Continue to implement Wetland Protection regulations. • Investigate wetland management alternatives that can provide a variety of wetland habitat conditions that are suitable to the various needs of the priority species in this habitat suite. (PIF) • Evaluate habitat requirements, including nest site characteristics, water quality, and minimum wetland area needed during both the breeding and non-breeding seasons. (PIF) • Design a regional management program for these wetland species that continue to be threatened by habitat loss, including increased coordination among managers and biologists to prevent duplication of research efforts and to share current information. • Creation of new nesting habitat may be needed for some species in this physiographic area. Minor alterations to existing management activities for waterfowl, such as leaving some dense stands of cattail and bulrush for nesting sites and maintaining fairly stable water levels during the nesting season, should benefit many of these species. Complete drying of impoundments during drawdowns should be avoided to prevent the die-off of small fish, amphibians, and dragonflies, which are a major food sources for many of these bird species. Slow drawdowns should benefit bitterns by providing suitable foraging habitat and encouraging dense stands of emergent vegetation for nesting. (PIF)
Reduce/eliminate wetland alteration and degradation.	• Implement new and existing outreach efforts to the general public to gain support for wetland protection. • Wetlands used as breeding sites should be protected from chemical contamination, siltation, eutrophication, and other forms of pollution/contamination that could directly harm breeding birds or their food supply. (PIF) • Hemi-marsh conditions favored by grebes and ducks need to be maintained by periodic reversal of vegetation succession to open up some of the extensive stands of emergent vegetation, but suitable habitat for nesting needs to maintained in nearby areas during wetland management. (PIF)
Reduce/eliminate invasive species.	• Evaluate effects of invasive plants such as *Phragmites* and purple loosestrife. (PIF) • Work with partners to remove invasive species from infested priority habitats.

	• Coordinate with IPANE • (http://invasives.eeb.uconn.edu/ipane) and other invasive species groups for guidance on removal.

2. Maintain and enhance populations of high priority species.

Monitor breeding and non-breeding populations of focal species to determine population size, status and trends.	• Develop a targeted monitoring program for high priority species. Coordinate with PIF projects. (BCR 30 workshop) • Utilize standard methods for conducting point-counts using tape-recorded vocalization playback. (PIF) • Determine causes of breeding failure and mortality of young and adults. (PIF)

Species Specific Objectives:

Species	Status & Distribution	Habitat Objectives	Research & Outreach Objectives
American Black Duck	See Estuaries and Bays for Objectives		
Barrow's Goldeneye	See Estuaries and Bays for Objectives		
Common Tern	See Islands for Objectives		

Palustrine Emergent Marsh

Associated Focal Species:

Species	Priority	B	M	W
American Black Duck	1	X		X
Black-crowned Night Heron	2	X		

Issues:

Threats:
Habitat loss and degradation

Goals:

General Objectives:
Conserve, restore and enhance populations of focal species in Palustrine emergent marsh habitat to ensure the overall conservation of all native species within this habitat.

Species Specific Objectives:

Species	Status & Distribution	Habitat Objectives	Research & Outreach Objectives
American Black Duck (Breeding Population)	Maine population estimated at: 32,300 individuals (or pairs??) Harvested 9,717 birds in 2002 Year round presence in Maine Obj being developed by NSST	Threats: competition with Mallards, human disturbance, habitat loss and degradation, and contaminants. Peatlands in northern part of BCR are threatened by peat extraction (BCR 14 Workshop)	Expand population model to include habitat characteristics (BCR 14 Workshop) Expand survey efforts throughout BCR to cover areas currently not included in aerial surveys (BCR 14 Workshop)
	See Estuaries and Bays for Wintering Objectives		

Black-crowned Night Heron	See Estuarine Emergent Saltmarsh for Objectives

Forested Wetland

Associated Focal Species:

Species	Priority	B	M	W
American Black Duck	1	X		X
Black-crowned Night Heron	2	X		
Rusty Blackbird	2	X		

Issues:

Threats:
Habitat loss and degradation

Goals:

General Objectives:
Conserve, restore and enhance populations of focal species in Forested Wetland habitat to ensure the overall conservation of all native species within this habitat.

Species Specific Objectives:

Species	Status & Distribution	Habitat Objectives	Research & Outreach Objectives
American Black Duck	See Estuaries and Bays for Objectives		
Black-crowned Night Heron	See Estuarine Emergent Saltmarsh for Objectives		
Rusty Blackbird	Maine population estimated at 1,907 ± 793 individuals Species of Special Concern Uncertain BBS trend in	Threats: Rapid declines associated with habitat loss throughout range, but trend in BCR is uncertain. May be vulnerable to competition from species favoring open habitat Conserve mosaics of forested wetlands	Need basic information on species distribution, demography, and limiting factors. (BCR 14 Workshop) Determine population trends (BCR 14 Workshop)

	BCR 14 <u>Population Goal:</u> Increase population 100% to 3,813 individuals	within landscape level habitat management efforts (BCR 14 Workshop)	Document habitat requirements and breeding needs for the species (BCR 14 Workshop)

Shrub-scrub Wetland, including bogs

Associated Focal Species:

Species	Priority	B	M	W	Species	Priority	B	M	W
American Woodcock	1	X			Olive-sided Flycatcher	2	X		
Canada Warbler	1	X			Rusty Blackbird	2	X		

Issues:

Threats:
Habitat loss and degradation

Goals:

General Objectives:
Conserve, restore and enhance populations of focal species in Shrub-scrub Wetlands, including bogs, to ensure the overall conservation of all native species within this habitat.

Species Specific Objectives:

Species	Status & Distribution	Habitat Objectives	Research & Outreach Objectives
American Woodcock	See Shrub / Early Successional habitat for Objectives		
Canada Warbler	See Deciduous Forest for Objectives		
Olive-sided Flycatcher	See Mixed Forest for Objectives		
Rusty Blackbird	See Forested Wetland for Objectives		

Uplands

Associated Focal Species:

Species	Priority	B	M	W	Species	Priority	B	M	W
American Golden Plover	2		X		Horned Lark	3	X		
American Redstart	2	X			Ipswich Savannah Sparrow	1	X		
American Woodcock	1	X			Killdeer	3	X		
Barn Swallow	3	X			Long-eared Owl	2	X		
Bay-breasted Warbler	1	X			Northern Flicker	3	X		
Bicknell's Thrush	1	X			Northern Goshawk	3	X		X
Black-backed Woodpecker	3	X		X	Northern Harrier	3	X		
Black-bellied Plover	2		X		Northern Parula	3	X		
Black-billed Cuckoo	3	X			Olive-sided Flycatcher	2	X		
Blackburnian Warbler	3	X			Ovenbird	3	X		
Blackpoll Warbler	3	X			Palm Warbler	3	X		
Black-throated Blue Warbler	2	X			Pine Grosbeak	3	X		X
Black-throated Green Warbler	3	X			Purple Finch	2	X		X
Blue-winged Warbler	2	X			Rose-breasted Grosbeak	3	X		
Bobolink	2	X			Ruffed Grouse	3	X		X
Boreal Chickadee	2	X		X	Short-eared Owl	3	X	X	
Boreal Owl	3			X	Upland Sandpiper	2	X		
Brown Creeper	3	X		X	Veery	2	X		
Canada Goose – NAP	2		X		Vesper Sparrow	3	X		
Canada Warbler	1	X			Whip-poor-will	3	X		
Cape May Warbler	2	X			Willet	3	X		
Chestnut-sided Warbler	2	X			Wilson's Snipe	3	X		
Chimney Swift	2	X			Wood Thrush	1	X		
Common Nighthawk	2	X			Yellow-bellied Flycatcher	3	X		
Eastern Wood-Pewee	2	X			Yellow-bellied Sapsucker	2	X		
Gray Jay	3	X		X					

Deciduous and Mixed Forests

Associated Focal Species:

Species	Priority	B	M	W	Species	Priority	B	M	W
American Redstart	2	X			Olive-sided Flycatcher	2	X		
Black-throated Blue Warbler	2	X			Purple Finch	2	X		X
Canada Warbler	1	X			Veery	2	X		
Chimney Swift	2	X			Wood Thrush	1	X		
Eastern Wood-Pewee	2	X			Yellow-bellied Sapsucker	2	X		
Long-eared Owl	2	X							

Issues:

Northern hardwood and mixed forests, usually dominated by sugar maple, beech, and birch represent the most widely distributed habitat-community within the region. Although mature hardwoods (and associated white pine) were extensively harvested in the past century, these forests have largely regenerated over most of the region during the past 50 years. In the Canadian provinces and northern Maine, however, where commercial timber production is the dominant land use, regenerating conifer stands have replaced the original hardwood forest over vast areas. Today, hardwood and mixed forest types are dominant in New England and at lower elevations in southern Quebec and southern New Brunswick. Throughout this recent history of widely fluctuating availability in the region, few if any bird species dependent on northern hardwood forests have been lost or severely reduced in abundance. The importance of this habitat type is great, because of the number of associated bird species with high proportions of their total population in the region. In general, these species are relatively abundant throughout the region, and many show stable or even increasing population trends. Setting habitat and population objectives is therefore not as straightforward as in the mountaintop or mature conifer habitat types. Conservation planning should focus on extensive tracts of representative forest types, and should address the microhabitat needs of species showing regional or local declines. A majority of high-priority species in this habitat are dependent on particular characteristics of the forest understory.

Threats:

- Large-scale forestry operations, resulting in habitat fragmentation, change in species and age composition
- Habitat loss associated with development
- Predation and Parasitism
- Contaminants
- Habitat loss on migration and wintering grounds

Goal:

Conserve, restore and enhance populations of focal species in the mature deciduous/mixed forest to ensure the overall conservation of all native species within this habitat.

General Objectives

1. Protect and maintain high priority habitats.

Strategy	Task
Identify priority habitats for protection.	• Conduct land use analysis to identify all remaining large forest block (e.g., ≥ 350 ha) and landscapes with high % forest cover (e.g., > 70%). (PIF)
Target large forest blocks for protection. (PIF)	• Collect ownership/contact information. • Research best method of protection—acquisition, fee or easements from willing sellers
Maintain and manage priority habitats already protected.	• Coordinate habitat protection of areas already owned by federal, state, local government or NGO's. (BCR 30 workshop) • Create and restore habitat in focus areas through manipulation, augmentation, connecting smaller forest blocks to create large patches, etc (PIF) • Assess vegetation structure to ensure that appropriate structural characteristics of the habitat are being maintained. (PIF) • If forest stands have reached a late-successional stage but have little shrub or mid-canopy vegetation and few breaks in the canopy, low-level management through selective cuts or thinning may improve habitat conditions. (PIF) • Assess the effects of various logging practices (especially selection and shelterwood cuts) on occurrence, breeding density, and nesting success of the priority species in this habitat suite. (PIF) • Develop specific forest management guidelines for high priority species. (BCR 30 workshop) • Develop guidelines for recommended deer densities that are compatible with reversing declines of priority forest birds. (BCR 30 workshop)

2. 2. Maintain or enhance populations of high priority species.

Monitor populations of focal species and species from the suite to determine population sizes, statuses, and trends.	• Develop a targeted monitoring program for high priority species. Coordinate with PIF projects. (BCR 30 workshop) • Design and conduct targeted monitoring program to track population trends of forest interior species that are not well-covered by BBS in this physiographic area. (PIF)

	• Monitor reproductive success of this suite of species at different locations throughout region to better understand where forest fragmentation causes problems and where it does not. (PIF) • Assess sensitivity of species in this habitat suite to pesticides currently being used to control gypsy moths and other insect pest species. (PIF) • Studies of reproductive success, lingering impacts of pesticide use, prey population levels, habitat characteristics of nest sites and preferred foraging areas. (PIF) • Determine relative importance and use of other habitat types during the post-fledging period prior to migration. (PIF)

Species Specific Objectives:

Species	Status & Distribution	Habitat Objectives	Research & Outreach Objectives
American Redstart	Maine population estimated at 644,964 ± 45,758 individuals <u>Population Objective:</u> Maintain current population level		
Black-throated Blue Warbler	Maine population estimated at 173,062 ± 19,768 individuals <u>Population Objective:</u> Maintain current population		
Canada Warbler	Maine population estimated at 46,000 ± 5,294 individuals Declining BBS trend (-2.46% / year between 1966-1999) for BCR 14	Threats: Habitat loss, and forest management practices which reduce availability of understory vegetation Halt habitat loss on wintering grounds (BCR 14 Workshop)	Expand network of forest monitoring sites (BCR 14 Workshop) Work with local communities on wintering grounds to educate them about CAWA conservation issues (BCR 14 Workshop)

	<u>Population Objective:</u> Increase BCR population by 50%, increase ME population to 69,020 individuals		Initiate research on winter habitat use and distribution, evaluate habitat characteristics of breeding habitat, and generate basic information on demography of population. (BCR 14 Workshop)
Chimney Swift	See Urban / Suburban for Objectives		
Eastern Wood-Pewee	Maine population estimated at 68,685 ± 7,468 individuals Declining BBS trends (-2.99% / year between 1966-1999) Continental declines but species is common near forest openings or edges <u>Population Objective:</u> Increase population by 50% to 103,025 individuals	Threats: Not clearly understood, habitat loss	Continue monitoring through BBS (BCR 14 Workshop) Examine causes of population decline (BCR 14 Workshop)
Long-eared Owl			
Olive-sided Flycatcher	Declining BBS trend in BCR (-3.65% / year between 1966-1999) Listed as Species of Special Concern in Maine <u>Population Objective:</u> Stabilize and reverse population decline	Threats: Not clearly understood, increased predation rates at edge habitats, habitat loss on wintering grounds Species should respond well to habitat created by disturbance and forestry practices Need to identify key breeding locations and assess current habitat conditions and potential threats at those sites (BCR 14	Need to initiate targeted monitoring efforts, such as a species atlas project, particularly in bog habitats (BCR 14 Workshop) Need to confirm population trend (BCR 14 Workshop) Initiate research on limiting factors, effects of silvicultural practices (i.e sang removal), and reproductive success rates in artificial or managed habitats (BCR 14 Workshop)

	Attempt to double current population	Workshop) Investigate experimental habitat manipulations to enhance local populations (BCR 14 Workshop)	 Educate landowners and mangers regarding the threats to, and associated decline of the species (BCR 14 Workshop)
Purple Finch	See Coniferous Forest for Objectives		
Veery	Maine population estimated at 564,228 ± 47,040 individuals Declining BBS trend (-1.19% / year between 1966-1999) for BCR 14 16% of population breeds in BCR 14 <u>Population Objective:</u> Increase population by 50% to 846,342 individuals	Threats: Loss of vegetation understory in maturing forests Increase habitat quality by increasing availability of understory vegetation in maturing forests	Continue monitoring through BBS (BCR 14 Workshop) Investigate reasons for population decline and determine status of wintering habitat (BCR 14 Workshop)
Wood Thrush	Maine population estimated at 306,500 ± 37,964 individuals Declining BBS trend (-2.49% / year between 1966-1999) for BCR 14 9% of population breeds in BCR 14 <u>Population Objective:</u>	Threats: Not clearly understood, but may include loss of habitat (shrub/scrub layer), acid rain, contaminants, and loss of wintering habitat Develop forest management guidelines which would result in improving habitat quality and quantity (BCR 14 Workshop) Develop regional integrated forest management plan (BCR 14 Workshop)	Continue monitoring through BBS (BCR 14 Workshop) Initiate research on population decline, focusing on reproductive success rates in relation to condition of forest (BCR 14 Workshop) Once forest guideline have been developed, work with forest mangers to insure measures are considered during management (BCR 14 Workshop)

	Increase BCR population by 50%, increase ME population to 459,750 individuals		
Yellow-bellied Sapsucker	Maine population estimated at 375,124 ± 37,130 individuals Declining BBS trend in BCR (-1.64% / year for 1966-1999) 11% of population breeds in BCR 14 <u>Population Objective:</u> Increase population by 10% to 412,636 individuals	Threats: loss of nesting habitat (cavities) Increase habitat quality for the species by leaving suitable cavity trees after timber harvest operations (BCR 14 Workshop)	Need to determine causes of population declines (BCR 14 Workshop)

Coniferous Forest

Associated Focal Species:

Species	Priority	B	M	W	Species	Priority	B	M	W
Bay-breasted Warbler	1	X			Long-eared Owl	2	X		
Boreal Chickadee	2	X		X	Olive-sided Flycatcher	2	X		
Canada Warbler	1	X			Purple Finch	2	X		X
Cape May Warbler	2	X							

Issues:

Cool coniferous forests, dominated by balsam fir and red spruce, represent one of two major forest types (along with northern hardwoods) that occur in a mosaic throughout the region. Largest continuous areas of coniferous forest exist in the northern and eastern sections of Maine. Stands dominated by spruces or firs also occur as islands throughout the mixed and hardwood dominated forests further south and at lower elevations, depending on drainage and disturbance regimes.

Coniferous (i.e. softwood) tree species are currently preferred for commercial timber production (pulp and paper) in this region, and vast acreages of coniferous forest are under management for commercial forestry. Total area of coniferous forest has increased in the region as mature hardwood and mixed forests were initially logged and replaced by regenerating softwoods. Because of shorter rotation cycles, however, age-class distribution of conifer forest is favoring younger and more even-aged stands. A 1995 forest-management plan for New Brunswick (NB Dept. of Natural Resources and Energy 1995) projected that mature and overmature classes of spruce-dominated coniferous forest will decline more rapidly over the next 40 years (from 46% of land area to 8%) than any other habitat-community type. Similar trends may also apply to portions of the industrial forests of northern Maine. It is these mature coniferous forests that support a large number of high priority bird species, and if projections are accurate these species may decline throughout the region. Unlike the patchily distributed mountaintop communities, where protection of specific sites is critical, conservation strategies for mature coniferous forest will need to focus on maintenance of minimum percentages of the landscape mosaic to prevent local loss of this habitat type and its associated dependent species. This goal may best be achieved through cooperative agreements with large landowners.

Many of the focal species in this group require better trend information primarily from areas not currently covered by BBS. These species vary widely in preference for age and density of forest, degree of association with wet areas, and tolerance of deciduous or mixed forests. None of these species are critically imperiled, and most are abundant and widespread in the region. However, many of these species have undergone periods of notable decline.

Threats:

- Large-scale forestry operations, resulting in habitat fragmentation, change in species and age composition
- Habitat loss associated with development

- Contaminants
- Habitat loss on migration and wintering grounds

Goal:

General Objective:
Conserve, restore and enhance populations of focal species in Coniferous Forests to ensure the overall conservation of all native species within this habitat.

Species Specific Objectives:

Species	Status & Distribution	Habitat Objectives	Research & Outreach Objectives
Bay-breasted Warbler	Maine population estimated at 56,402 ± 11,499 individuals Possibly declining BBS trend (-1.79% / year between 1966-1999) 9.3% of population breeds in BCR 14 (mostly in Canada) <u>Population Objective:</u> Increase population by 50% to 84,602 individuals	Threats: Loss of mature spruce-fir habitat due to shortened harvest rotations, spruce budworm suppression efforts, forest fragmentation, loss of wintering habitat, and perhaps global climate change Population is naturally cyclic with spruce budworm outbreaks Maintain existing large contiguous tracks of mature spruce-fir forest (BCR 14 Workshop)	Investigate effects of spruce budworm suppression efforts on the population, and determine if current population level reflects natural population fluctuations associated with budworm outbreaks (BCR 14 Workshop) Initiate efforts to monitor habitat on wintering grounds (BCR 14 Workshop)
Boreal Chickadee	Maine population estimated at 31,707 ± 9,270 individuals Declining BBS trend in BCR (-6.54% / year between 1966-1999)	Threats: habitat loss	Determine how well BBS routes sample this species (BCR 14 Workshop) Investigate causes of population decline, including winter ecology and forest fragmentation (BCR 14 Workshop)

	Year-round resident <u>Population Objective:</u> Increase population by 100% to 63,415 individuals		Determine current habitat requirements and availability, and establish habitat threshold for species (BCR 14 Workshop)
Canada Warbler	See Deciduous Forest for Objectives		
Cape May Warbler	Maine population estimated at 44,052 ± 9,264 individuals Possible BBS declines (-1.54% / year between 1966-1999) <u>Population Objective:</u> Maintain current population	Threats: Loss of mature conifer forest Maintain existing patches of mature conifer forest and incorporate plans for older growth patches into forest management plans (BCR 14 Workshop) Work with industrial foresters to insure long-term availability of mature conifer forest (BCR 14 Workshop)	Continue monitoring through BBS (BCR 14 Workshop) Evaluate relationship to spruce budworm cycles (BCR 14 Workshop)
Long-eared Owl			
Olive-sided Flycatcher	Maine population estimated at 5,435 ± 1,307 individuals <u>Population Objective:</u> Increase population by 100% to 10,869 individuals		
Purple Finch	Maine population	Threats: generally unknown, but may be	Continue monitoring population trends,

	estimated at 81,170 ± 7,058 individuals Declining BBS trend for BCR (-2.43% / year for 1966 -1999) 11% of breeding population in BCR 14 <u>Population Objective:</u> Increase population by 50% to 121,754 individuals	adversely effected by changes in forest structure and harvesting practices Enhance nesting habitat for the species by promoting management practices that provide greater structural diversity within the forest (BCR 14 Workshop)	including monitoring in managed forests (BCR 14 Workshop) Gather information on habitat associations, including forest structure, for the species (BCR 14 Workshop) Develop outreach material promoting structural diversity within the forest, and provide to industrial forest managers (BCR 14 Workshop)

Mountaintop Forest

Associated Focal Species:

Species	Priority	B	M	W
Bicknell's Thrush	1	X		
Purple Finch	2	X		X

This habitat type occurs naturally at high elevations (>900 meters) from the Adirondack Mountains of New York, northeastward through northern New England, western New Brunswick to the Gaspe Peninsula of Quebec. As a result its distribution is naturally fragmented at the landscape level, with most patches estimated to be <1,000 ha in extent.

Threats:

- Global climate change
- Acid precipitation
- Recreational and other development
- Contaminants
- Habitat loss on migration and wintering grounds

Goal

Conserve, restore and enhance populations of focal species which utilize mountaintop forest to ensure the overall conservation of all native species within this habitat.

General Objectives

1. Protect and maintain high priority habitats.

Strategy	Task
Identify priority habitats for protection.	• Identify and characterize (habitat size, quality, and ownership) of all potential habitat patches, using GIS (PIF Plan for Physiographic Area 28) • Designate important breeding areas under Important Bird Area program (PIF Plan for Physiographic Area 28) • Identify specific threats at occupied sites (PIF Plan for Physiographic Area 28) • If declines in habitat availability or Bicknell's Thrush populations are documented, initiate legal mandates to implement habitat protection strategies (PIF Plan for

	Physiographic Area 28) • Initiate efforts to "officially" recognize Bicknell's Thrush and mountaintop habitat as a high conservation priority in public agency and private land-use planning efforts (PIF Plan for Physiographic Area 28)

2. Maintain or enhance populations of high priority species.

Monitor populations of focal species and species from the suite to determine population sizes, statuses, and trends.	• Complete on-the-ground inventories to determine numbers of breeding Bicknell's Thrush at all occupied sites (PIF Plan for Physiographic Area 28) • Initiate research on reproductive success of focal species into ongoing studies of forest health, in relation to pollution and development (PIF Plan for Physiographic Area 28)

Species Specific Objectives:

Species	Status & Distribution	Habitat Objectives	Research & Outreach Objectives
Bicknell's Thrush	>90% of population breeds in BCR 14 Species of Special Concern in Maine <u>Population Objective:</u> Increase population within BCR (35,000 individuals) by 10% to 38,500 individuals	Threats: Global climate change, environmental contaminants (mercury), breeding habitat loss (communication towers, ski areas, wind power turbines), winter habitat loss, and industrial forest practices Maintain existing range of breeding habitat (BCR 14 Workshop) Secure habitat protection for core breeding areas in Maine, secure stewardship and management agreements with industrial forest managers (PIF Plan for Physiographic Area 28 and BCR 14 Workshop) Develop mitigation policies and measures that would protect and enhance wintering habitat, to offset development projects in	Expand existing monitoring practices for high elevation species, including monitoring natal dispersal of BITH (BCR 14 Workshop) Analyze existing data to evaluate population changes (BCR 14 Workshop) Evaluate significance of contaminant exposure (mercury) on BITH (BCR 14 Workshop) Initiate a Population Viability Analysis for BITH (BCR 14 Workshop) Model potential consequences of climate change (BCR 14 Workshop) Determine demographics and reproductive success rates within industrial forest landscape (BCR 14 Workshop)

		the US (BCR 14 Workshop) Develop management plans and formal protection measures for core wintering areas (BCR 14 Workshop) Habitat restoration and creation of buffer zones around important habitat on the wintering grounds (BCR 14 Workshop)	Examine habitat segregation between males and females on the wintering grounds (BCR 14 Workshop) Expand monitoring efforts throughout wintering range (BCR 14 Workshop) Determine distribution and habitat use in Cuba, Haiti, and Jamaica (BCR 14 Workshop) Use BITH as an umbrella species to educate public about conservation needs of migratory species and international conservation issues (BCR 14 Workshop) Educate recreational users of montane forests about BITH conservation (BCR 14 Workshop)
Purple Finch	See Coniferous Forest for Objectives		

Shrub / Early Successional Forest

Associated Focal Species:

Species	Priority	B	M	W	Species	Priority	B	M	W
American Woodcock	1	X			Chestnut-sided Warbler	2	X		
Blue-winged Warbler	2	X			Olive-sided Flycatcher	2	X		

Issues:

Natural disturbance was undoubtedly responsible for maintaining local areas of early successional habitat, following severe storms, landslides, beaver activity, or fire. These areas probably were important in sustaining populations of priority bird species, and they remain important today, especially in portions of physiographic area that are exempt from timber harvest. Other early successional habitats are created or maintained through the processes of agricultural abandonment and silviculture. Regenerating forests created through silvicultural practices are an important component of the landscape on extensive areas owned by private timber companies. Many species of birds associated with this habitat have been experiencing steep population declines in the Northeast over the last several decades, including in Maine. While many of these species are still fairly widespread and common, these steep declines warrant some attention. (PIF)

Threats:

- Urban/suburban development
- Habitat fragmentation
- Lack of adequate disturbance events in remaining forested areas
- Habitat loss on migration and wintering grounds

Goal:

Conserve, restore and enhance populations of focal species in shrub / early successional habitat to ensure the overall conservation of all native species within this habitat.

General Objectives:

1. Protect and maintain high priority habitats. (Refer to PIF Physiographic Area 9 plan for a comprehensive discussion on management and implementation strategies.)

Identify and protect high priority habitat.	• Research best method of protection—acquisition, fee or easements from willing sellers • Identify powerline rights-of-way to be managed to provide habitat for shrubland birds. (PIF)

Maintain, manage and monitor priority habitats already protected.	• Sustain habitat through collaborative management of areas that already are subjected to frequent human disturbance from agriculture, forestry, or the maintenance of roads and rights-of-way. (PIF) • Coordinate habitat protection of areas already owned by federal, state, local government or NGO's. (BCR 30 workshop) • Compare early successional habitats resulting from natural disturbances vs. forestry practices vs. power line rights-of-way with regard to suitability for high-priority species, including breeding densities and nesting success. (PIF) • Determine if there is relationship between patch size and nesting success for shrubland birds, and between patch size and breeding density for the more area sensitive species. (PIF) • Continue clearcutting as a management as a means of providing shrub habitat on state forests. (PIF) • Implement careful planning of rotational harvest schedules. (PIF) • Maintain right-of-ways by selectively spraying herbicide on the base of tall-growing trees. (PIF)

2. Maintain or enhance populations of high priority species.

Utilize existing programs to increase populations of grassland species.	• Increase utilization of Farm Bill programs to benefit priority grassland and shrubland birds. • Expand traditional game management in early successional habitats to include nongame bird priorities and objectives; including evaluation of effects of traditional game management on priority nongame species
Monitor species to determine population size, status and trends.	• Develop a targeted monitoring program for high priority species. Coordinate with PIF projects. (BCR 30 workshop) • Research/monitoring is needed on effects of cowbird parasitism on shrubland birds. (PIF) • Determine effects of woodcock habitat management techniques on other priority, early-successional bird species. (PIF) • Develop targeted monitoring/research program on demographics and habitat-area relationships for priority grassland birds building on and expanding the techniques developed by Massachusetts Audubon. (BCR 30 workshop)

Species Specific Objectives:

Species	Status & Distribution	Habitat Objectives	Research & Outreach Objectives

American Woodcock	Estimated state population of 523,000 Declining BBS trend (-6.3% /year) between 1966-1999 Maine population declines 2.2% / year between 1968-2001 <u>Population Objective:</u> Halt population decline by 2012 and see increase by 2022 to levels documented in 1970's (measured by singing ground surveys)	Threats: Habitat loss and degradation on both breeding and wintering grounds, forest maturization, egg and chick mortality influenced by weather and predation, adult mortality rates (weather, predation, and harvest), and contaminants (?) Intensive forest management (clear-cutting, heavy partial cuts, and fuel wood harvesting) and the increasing harvest of early successional hardwoods may enhance habitat for woodcock	Need to monitor recruitment levels using harvest surveys (BCR 14 Workshop) Need to assess singing ground surveys for accuracy, but continue monitoring effort (BCR 14 Workshop) Evaluate effects of contaminant exposure (BCR 14 Workshop) Provide technical assistance to landowners (industrial and non-industrial) on life history requirements of woodcock (BCR 14 Workshop)
Blue-winged Warbler	BCR objective is to increase population by 50%		
Chestnut-sided Warbler	Maine population estimated at 274,614 ± 22,364 individuals Decreasing BBS trend (-1.54 % / year between 1966-1999) but still widespread 12.8% of population breeds in BCR 14	Threats: Habitat loss due to development and declining availability of early successional habitat, and predation Maintain and increase early successional habitat, on private and industrial forest lands (BCR 14 Workshop)	Investigate population demographics in different early successional habitats (edge vs clearcut), including evaluation of reproductive success for birds nesting in these areas (BCR 14 Workshop) Determine minimum patch size required for stable population (BCR 14 Workshop) Develop management prescriptions for maintaining suitable early successional habitat for species dependent on this serial stage in the context of ecosystem

	<u>Population Objectives:</u> Increase population by 50% to 411,921 individuals		management (BCR 14 Workshop) Educate public about role of natural disturbances in forest management, and the dependency of certain species on this process (BCR 14 Workshop)
Olive-sided Flycatcher	See Coniferous Forest for Objectives		

Grasslands / Agriculture

Associated Focal Species:

Species	Priority	B	M	W	Species	Priority	B	M	W
American Golden-Plover	2		X		Canada Goose - NAP	2		X	
American Woodcock	1	X			Ipswich Savannah Sparrow	1	X		
Black-bellied Plover	2		X		Upland Sandpiper	2	X		
Bobolink	2	X			Whimbrel	2		X	

Issue:
Historically, natural grasslands were not a major feature of this region, and it is likely that other naturally occurring openings, such as bogs or wet meadows supported many grassland birds. Today, agricultural land represents a minor and declining feature of the landscape. However, various conservation plans have identified the need to maintain blueberry barren and agricultural fields to provide breeding habitat for the species listed above. The decline of species associated with open fields is closely correlated with recent trends of increased residential and commercial development and the declining interests in agriculture; each resulting in a reduction of available grasslands, open fields, blueberry barrens, and pastures within Maine. In addition to providing breeding habitat, these open fields provide important foraging habitat for migratory birds during spring and fall migration.

Threats:
- Loss of open land associated with declining farm practices including residential development and reversion to forest.
- Habitat Fragmentation
- Agricultural Practices
- Contaminants
- Habitat loss on migration and wintering grounds

Goal:
Conserve, restore and enhance populations of focal species in grasslands and agricultural fields to ensure the overall conservation of all native species within this habitat.

General Objectives:

1. Protect and maintain high priority habitats. (Refer to PIF Physiographic Area 9 plan for a comprehensive discussion on management and implementation strategies.)

Identify high priority habitats for protection.	• Identify and protect key areas, especially large grasslands, for immediate

	conservation efforts. (PIF) • Collect ownership/contact information. • Research best method of protection—acquisition, fee or easements from willing sellers • Further research on different management techniques is needed to understand the appropriateness of prescribed burning, mowing, and other methods for maintaining suitable habitat for Northeastern grassland birds. (PIF) • Determine if differences exist in grassland breeding bird diversity and abundance in the Northeast between warm season and cool season grass types. (PIF)
Maintain, manage and monitor priority habitats	• Coordinate with other states to develop and implement a comprehensive grassland management plan for the entire New England region. (PIF) • Consider consolidation of adjacent grassland fields, through the elimination of hedgerows, stone fences, or tree lines, in areas where open land occupies a considerable amount of the surrounding landscape and grassland management can be identified as a reasonable management alternative. (PIF) • Determine if current mixtures of warm season grasses has failed to provide adequate habitat for grassland breeding birds. Focus on cool season grasslands if needed. (PIF) • Continue monitoring grassland habitats within the physiographic area as part of a regional effort within New England to better assess grassland bird abundance trends. (PIF) • Develop and implement integrated management plans for grasslands on civilian and military airfields. (BCR 30 workshop) • When managing grasslands, employ best management practices using guidelines in Massachusetts Audubon Society's *Conserving Grassland Birds* publication (www.massaudubon.org) (MDIFW E&T Handbook) • Manage multiple, contiguous fields to provide a mosaic of grassland types by mowing, burning, or late-season grazing. Mow every 2-5 years to inhibit establishment of shrubs and trees (MDIFW E&T Handbook) • Burn fields every 5-10 years after September 1 or before May 1. Do not burn more than 50% of a grassland within a year. (MDIFW E&T Handbook) • Avoid or minimize herbicide and pesticide applications,, or employ integrated pest management techniques (MDIFW E&T Handbook) • Use voluntary agreements, conservation easements, conservation tax abatements and incentives, and acquisition to protect important habitat for grassland nesting species (MDIFW E&T Handbook)

1. *Maintain or enhance populations of high priority species.*

Monitor populations of focal species to determine population size, status and trends.	• Conduct demographic studies (productivity, survival, dispersal) of priority species to provide information needed for determining causes of population declines and understanding metapopulation dynamics

Species Specific Objectives:

Species	Status & Distribution	Habitat Objectives	Research & Outreach Objectives
American Golden Plover	See Unconsolidated Shore for Objectives		
American Woodcock	See Shrub /Early Successional Habitat for Objectives		
Black-bellied Plover	See Unconsolidated Shore for Objectives		
Bobolink	Maine population estimated at 212,315 ± 41,254 individuals Declining BBS trends (-2.23% / year) between 1966-1999 for BCR 14 resulting in >50% decline in population <u>Population Objective:</u> Increase population by 50% to 338,628 individuals	Threats: Agricultural practices, loss of habitat, increasing predation rates due to habitat fragmentation (?) Maintain suitable habitat distributed across the landscape to support viable metapopulation structure (BCR 14 Workshop) Continue efforts to develop grassland management protocol to maintain and enhance nesting habitat for grassland nesting species (BCR 14 Workshop)	Need to conduct Population viability Analysis, investigate metapopulation structure and dynamics (BCR 14 Workshop) Evaluate effects of contaminant exposure on wintering grounds (BCR 14 Workshop) Develop outreach materials which promote grassland management techniques that benefit grassland nesting birds (BCR 14 Workshop) Research effects of mowing and burning practices on reproductive success and predation rates (PIF)
Canada Goose - NAP	Maine population estimate: 8,900 pairs Significant component of migrant population	Conserve significant staging and wintering habitat from habitat degradation (BCR 14 Workshop) Merrymeeting Bay and Scarborough	Conduct survey to determine status and distribution of population (BCR 14 Workshop) Develop better aging techniques (BCR 14

	associated with BCR 14 Population is stable 2002 harvest was: 12,800 birds	Marsh are significant spring and fall stopover locations	Workshop) Evaluate effects of aquaculture development and associated human activities on habitat availability (BCR 14 Workshop) Investigate significance of eelgrass declines on population (BCR 14 Workshop) Continue outreach efforts to inform public of differences between resident and migratory populations (BCR 14 Workshop)
Ipswich Savannah Sparrow	100% of breeding population of this subspecies and most of its wintering grounds occurs in this BCR <u>Population Objective:</u> Increase population to levels observed in 1970's & 1980's (BCR 14 Workshop)	Specific habitat goals for this species will be possible after winter habitat surveys are completed	Initiate breeding ground surveys(BCR 14 Workshop) Improve techniques to differentiate between Savannah Sparrows during Christmas Bird Counts (BCR 14 Workshop) Initiate efforts to investigate taxonomic status of species (BCR 14 Workshop) Initiate surveys of occupied winter range to identify and evaluate site characteristics (BCR 14 Workshop) Educate coastal beachfront owners about the species' winter habitat needs (BCR 14 Workshop)
Upland Sandpiper	State population is estimated at 148 pairs occupying 59 grassland-barrens and airports	Threats: Largely unknown, habitat loss, adult survival rates, habitat quality and quantity on migratory routes and wintering grounds, and food availability Agricultural practices may be limiting availability of herbaceous cover needed for nesting, and increasing vulnerability to	Initiate effort to monitor population size and trends, habitat quality, survival rates, and productivity (MDIFW Species Assessment) Need to evaluate effects of vegetation management actions (intensity, technique, and frequency) on population (BCR 14 Workshop)

		predation (BCR 14 Workshop) Vegetation management efforts have included: periodic mowing or burning (every 1-3 years) to promote bunch grasses and forbs, while discouraging encroachment by woody vegetation (MDIFW Species Assessment) Recommended Management Actions Include: (MDIFW Species Assessment) -Avoid mowing and grazing between May 1 – August 5 - Maintain approx. 40% of vegetation at a height of 8-12", with minimum litter and grass cover. Maintain some patches of bare ground, scattered tall forbs (8-25"), and short shrubs for song perches Blueberry barrens in Hancock and Washington Counties provide primary breeding habitat in Maine. Future availability of this habitat will depend on commercial demand for blueberries <u>Focus Areas:</u> Downeast Blueberry Barrens	
Whimbrel	See Unconsolidated Shore for Objectives		

Urban / Suburban

Associated Focal Species:

Species	Priority	B	M	W
Common Nighthawk	2	X		
Chimney Swift	2	X		

Issues:
Urban/suburban habitat provides suitable habitat for a number of species for which historical habitat(s) have been significantly altered or reduced. (PIF)

Threats:
- Changes in modern building construction
- Use of pesticides for mosquito control

General objectives
Conserve, restore and enhance populations of focal species in urban and suburban areas to ensure the overall conservation of all native species within this habitat.

1. Maintain and enhance populations of high priority species.

Monitor populations of focal species to determine population size, status and trends.	• Participate/establish a network of managers, biologists, and researchers are needed across northern New England to more effectively address the needs and coordinate conservation efforts for the high priority urban birds. (PIF) • Surveying efforts, identification of significant breeding locations, and public education/outreach should be coordinated on a regional basis. (PIF) • Develop an appropriate survey method for tracking populations of Chimney Swifts and Common Nighthawks and conduct a thorough status assessment of these species. (PIF) • Understand impacts of pesticides (e.g., urban/suburban mosquito spraying) on this suite of species, including links to the current outbreak of West Nile virus. (PIF) • Compile better life history information on these species, such as kinds of nest predators and levels of nest depredation, breeding longevity and reproductive effort

	over time, characteristics of preferred nesting requirements, fidelity to breeding and wintering sites, and better assessment of migration routes and destinations. (PIF)

Species Specific Objectives:

Species	Status & Distribution	Habitat Objectives	Research & Outreach Objectives
Chimney Swift	Maine population estimated at 72,673 ± 9,877 individuals Declining BBS trend in BCR (-3.78% / year for 1966-1999) <u>Population Objective:</u> Increase population by 50% to 109,010 individuals	Threats: Loss of habitat (chimneys and large trees), potential decline in prey availability due to pesticides, contaminants Work with industrial forest industry to increase number of large trees left after harvesting operations (BCR 14 Workshop) • Identify key breeding locations area for Chimney Swifts and Common Nighthawks should be identified for immediate conservation efforts. (PIF) • Landowner contacts should be made at each site to encourage proper management for these species. (PIF) • distribute information materials on the use of rooftops and chimneys as nesting sites. (PIF) Develop and implement public education programs to encourage reports of Chimney Swifts; develop urban public education in schools to aid in the monitoring and assessment of populations of these species. (PIF)	Develop standardized survey methods for species, as BBS routs do not adequately census this species (BCR 14 Workshop) Determine causes of population declines (BCR 14 Workshop)
Common Nighthawk	Maine population estimated at 3,488 ± 1,983 individuals <u>Population Objective:</u>		

	Increase population by 50% to 5,232 individuals		